Choctawhatchee Pea, and Yellow Rivers

Water Supply Alternatives Evaluation Study

August 26, 2004

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Phase I Studies

- Isotopic and Geochemical Assessment
- Long Range Forecasts of Water Demand For 10 County Region
- Wetlands Delineation and Classification For Alternative Reservoir Sites

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Alternatives Considered

- Agricultural Water Supply
  - Direct Withdrawal Without Impoundment
  - Additional Groundwater
  - Off Channel Storage
  - New Reservoir Construction

Municipal Water Supply Needs

Coffee, Dale and Houston Counties

Type of Demand	2000	2050	Difference
Residential	23.81	37.12	13.31
Non-Residential	7.5	11.98	4.48
Total	31.31	49.1	17.79

Alternatives Considered (Continued)

- Municipal Water Supply
  - Direct Withdrawal Without Impoundment
  - Additional Groundwater
  - Conservation
  - Modifying Existing Reservoir – Lake Tholocco
  - New Reservoirs

Direct Withdrawal

- Site Located near Bellwood community
- 8-16 MGD
- Less Costly than Reservoir
- Shorter Implementation Time
- Incomplete Solution
- Minimal Wetlands Impacts
- Withdrawals limited during droughts

Additional Groundwater

- Potential Yields
  - Coffee County – 1.9 to 11.5 MGD
  - Dale County – 1.4 to 7.6 MGD
  - Houston County – 3.0 to 17.3 MGD
- Cost Effective Solution
- Shorter Implementation Time
- Minimal Wetlands Impacts
- Finite Resource – Not a Long-Term Solution

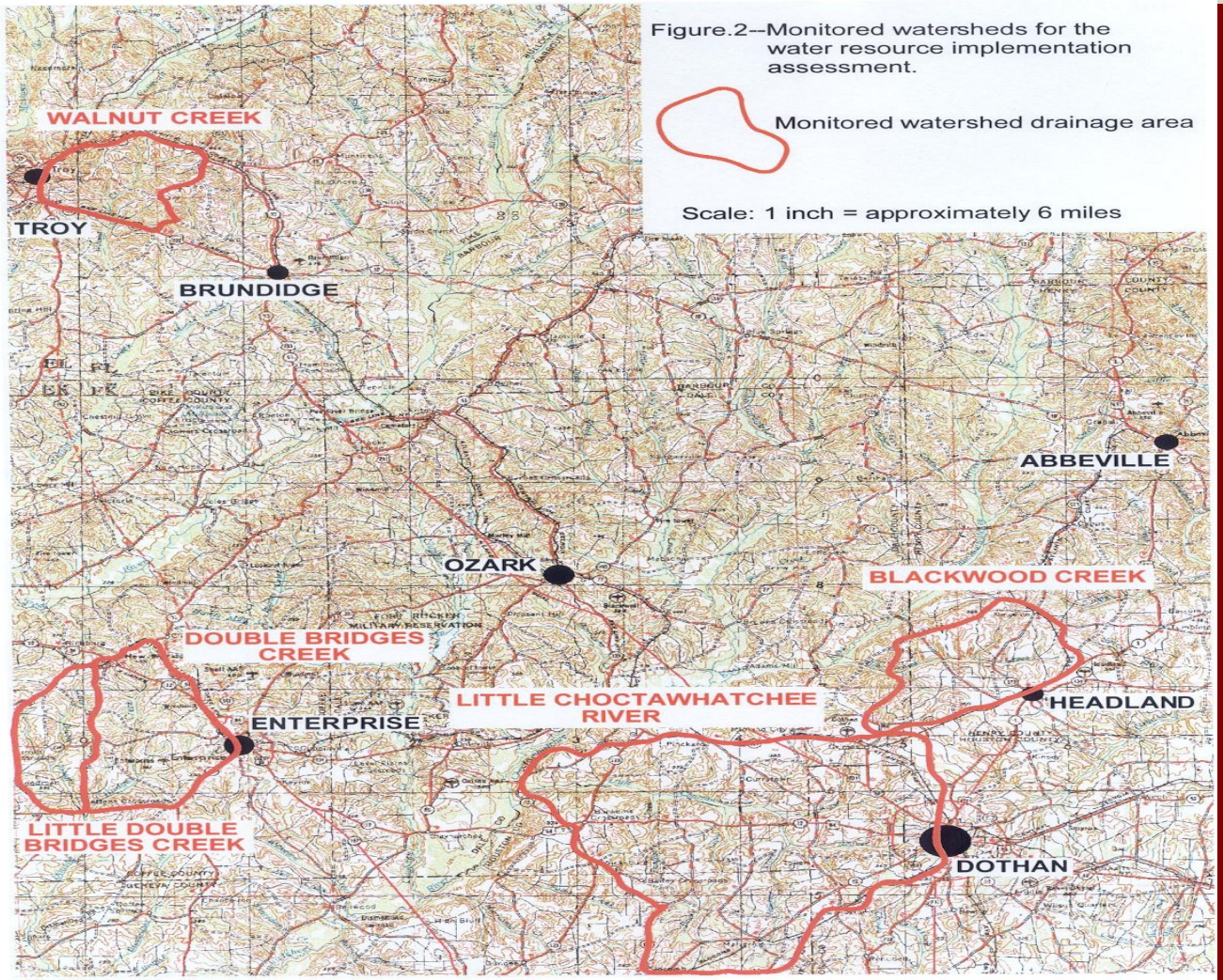
Conservation

- Consumer Education
- Incentives
- Plumbing Standards
- Mandatory Outdoor Watering Restrictions
- Not a Complete Solution

Modify Existing Reservoir

- Lake Tholocco - Three Alternative Reservoir Elevations
  - Existing elevation – no water supply yield
  - Increase Pool Elevation 3.5 feet – yield 3.2 MGD
  - Increase Pool Elevation 7 feet – yield 8.4 MGD
  - Costs: $20 million to $45 Million
- Not a Long-Term Solution

New Reservoir Construction



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New Reservoir Construction

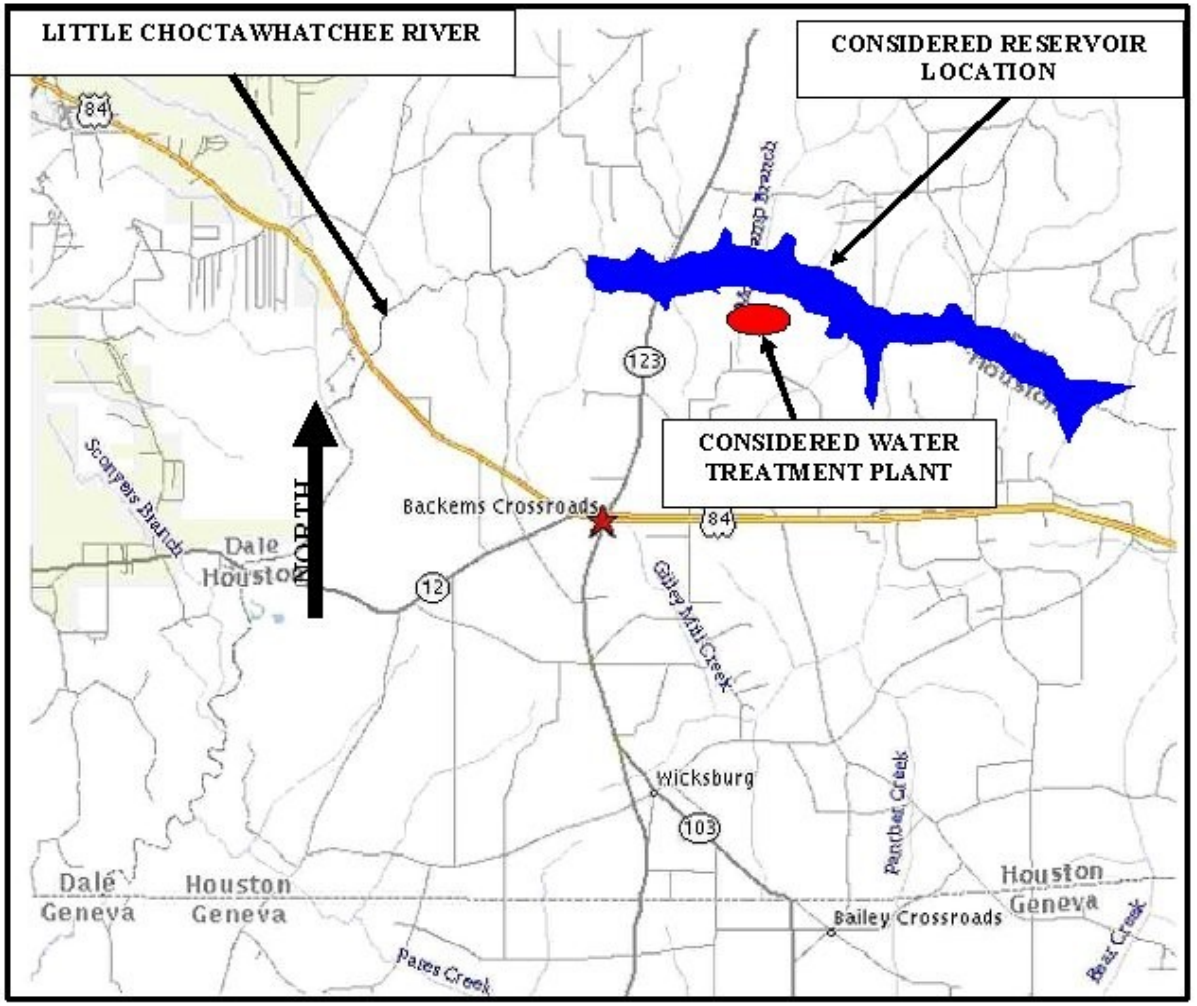
(Continued)

	Blackwood	Dbl Brdgs	Little Choc	L D Brdgs	Walnut
Geotech/ Geology	4	2	1	3	5
Hydrology	2	3	1	4	5
Env	5	2	3	1	4
Real Est	1	4	2	3	5

Considered Municipal & Industrial (M&I) Alternatives

- Regional Reservoir
  - For the portion of the Study Area with the most immediate need
- Direct Withdrawal Without Impoundment
- Lake Tholocco as a considered M&I water supply source

Regional Reservoir – Considered Location



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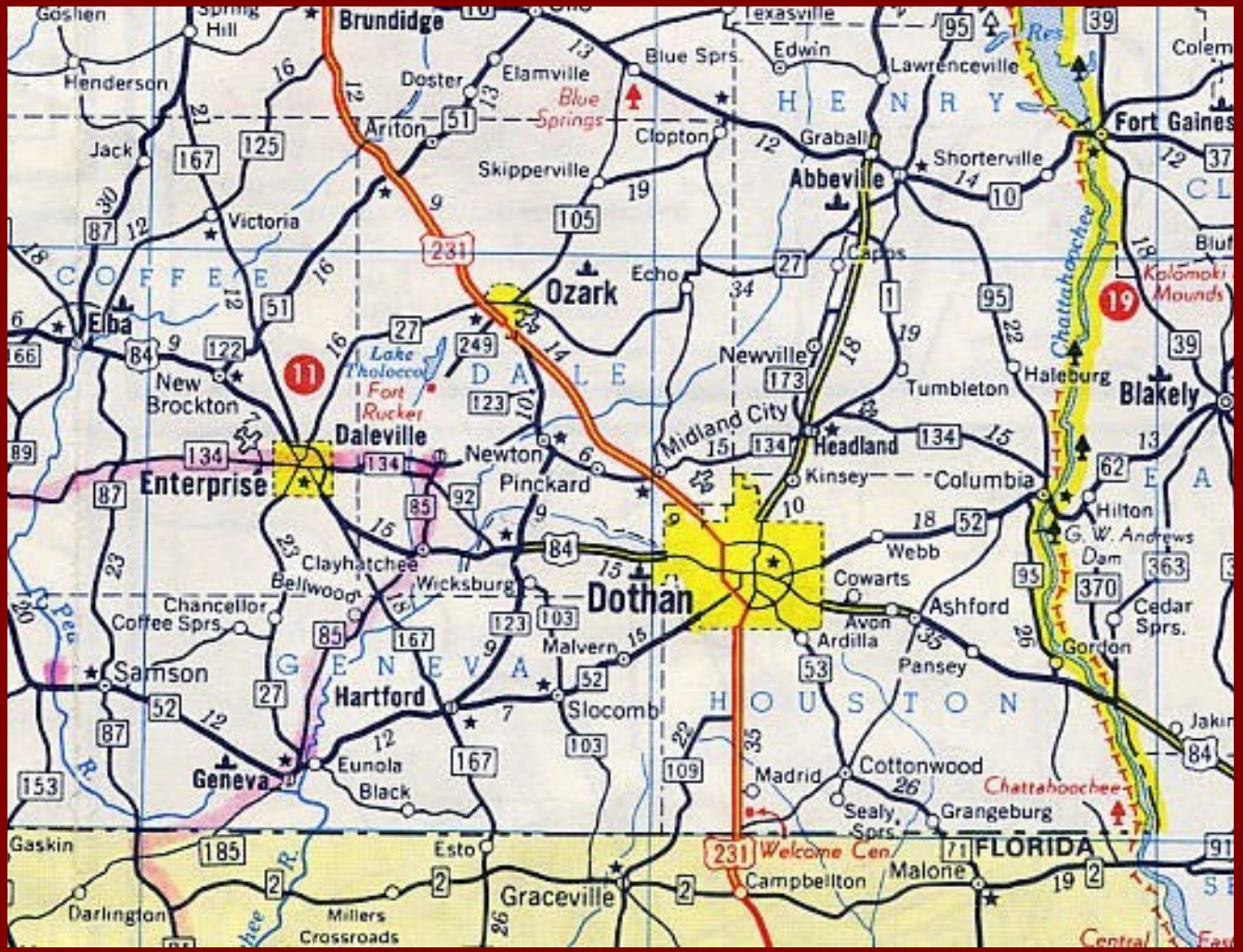
Regional Reservoir - Considered Service Area



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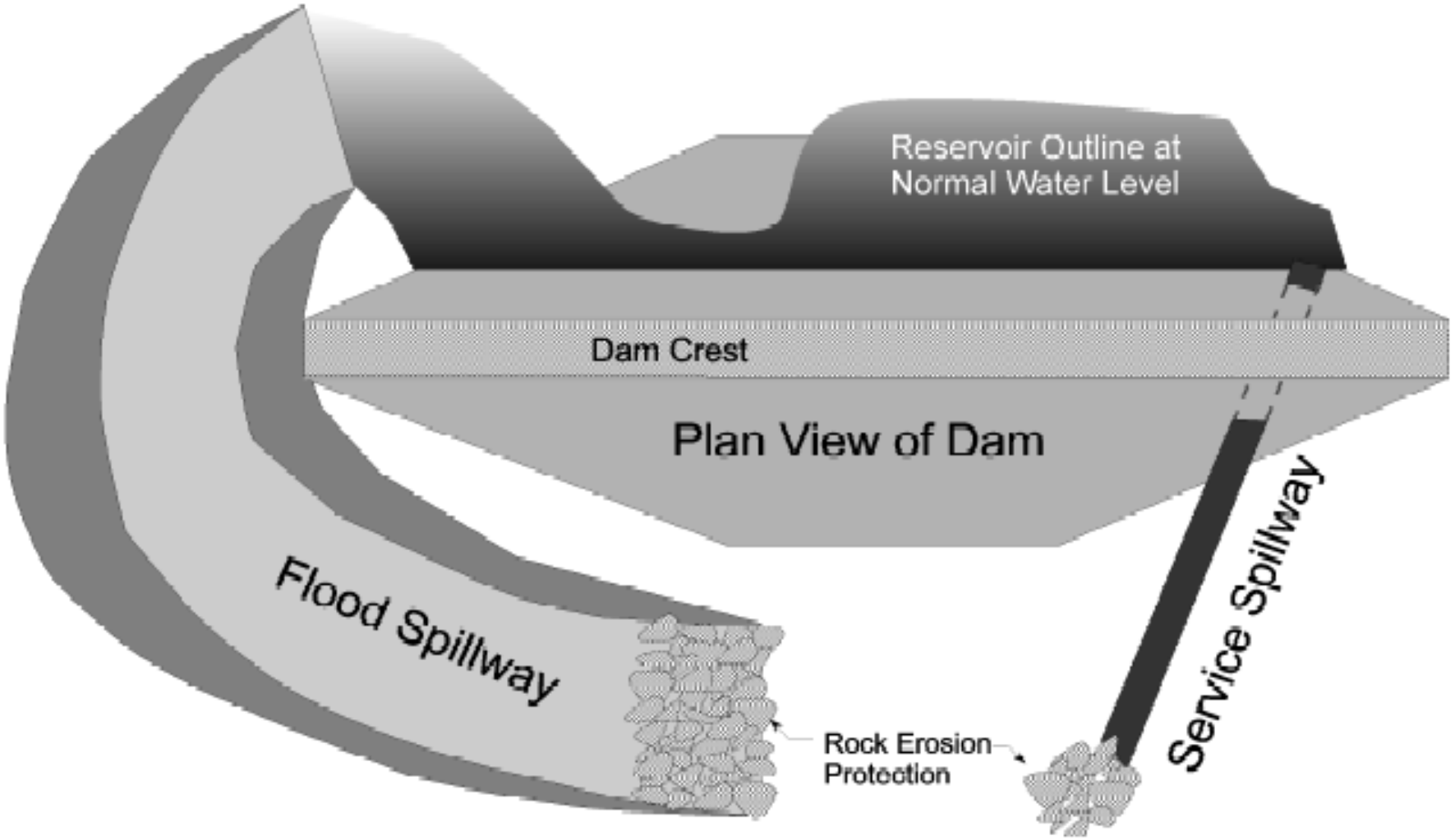
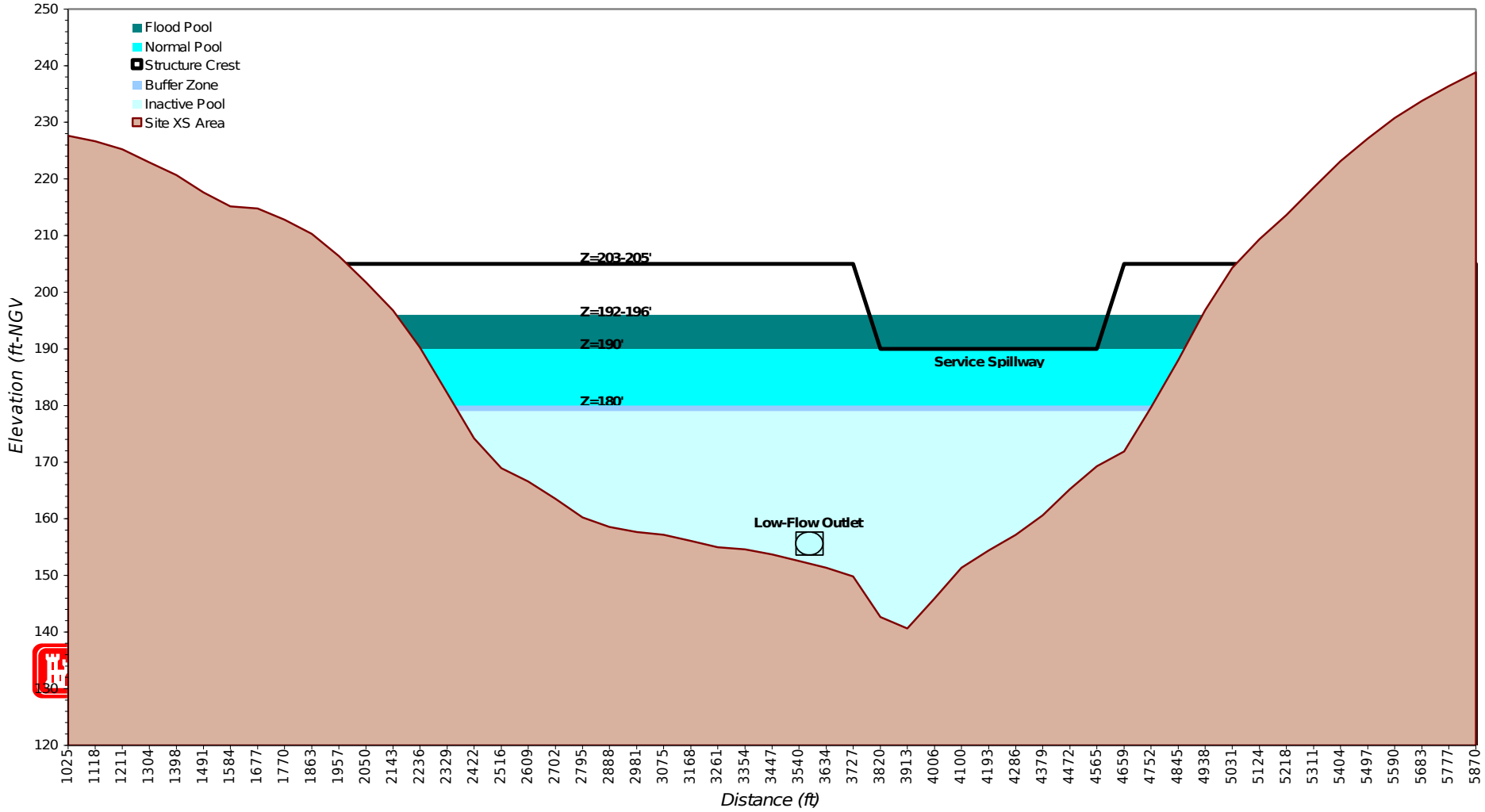
Regional Reservoir - Project Features (Plan View of Dam)



Regional Reservoir - Project Features (Elevation View of Dam)



Estimated Water Treatment System Appurtenance Sizing

- Water Treatment Plant
  - 25 year planning period (year 2000-2025)
  - Plant upgrades after planning year
  - USACE *Historical & Existing Water Demands* analysis used as a guide
  - Plant sized to support average daily demand (A.D.D.)
    - Year 2000 A.D.D. – 48.31 MGD
    - Year 2025 A.D.D. – 60.64 MGD
    - Net difference = initial treatment plant capacity = 12.33 MGD

Estimated Water Treatment System Appurtenance Sizing (con't)

- Proposed Mainline Pipe Sizing
  - Not conveniently or economically added or constructed during future expansion
- Size to
  - support ultimate system capacity (entire 50 year planning period)
    - Year 2000 to 2050
  - Support peak daily demand (P.D.D.)
    - Assumed velocities in pipe around 5 to 10 feet per second (fps) at ultimate 50-year buildout
    - Pipe velocities checked at year 2025 flows to ensure that piping is not oversized
- A.D.D. in USACE study multiplied by peaking factor to estimate P.D.D.
- Pipe sizes vary depending on flowrate through the pipe and pressure losses.

Regional Reservoir R.O.M. Costs For Portion of Study Area With Most Immediate Need

- Includes costs associated with the construction of all entities as described thus far in this study;
  - 74 MGD Regional Reservoir
  - 12.33 MGD Water Treatment Plant System
  - Varying Water Pipe Line Lengths
    - 337,920 LF of piping ranging in size from 10” to 42” in diameter
  - Real Estate Costs
  - Mitigation Costs
  - HTRW Costs

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Regional Reservoir R.O.M. Costs For Portion of Study Area With Most Immediate Need (con't)

- Total Estimated R.O.M. Costs
  - Regional Reservoir Development - $66,000,000
  - Water Treatment Plant System - $39,000,000
  - Water Pipe Line - $46,000,000
  - Real Estate Acquisition - $25,094,000
  - Environmental Mitigation - $23,325,000
  - HTRW Estimate - $110,000
- Total Estimated R.O.M Construction Costs = $194,529,000

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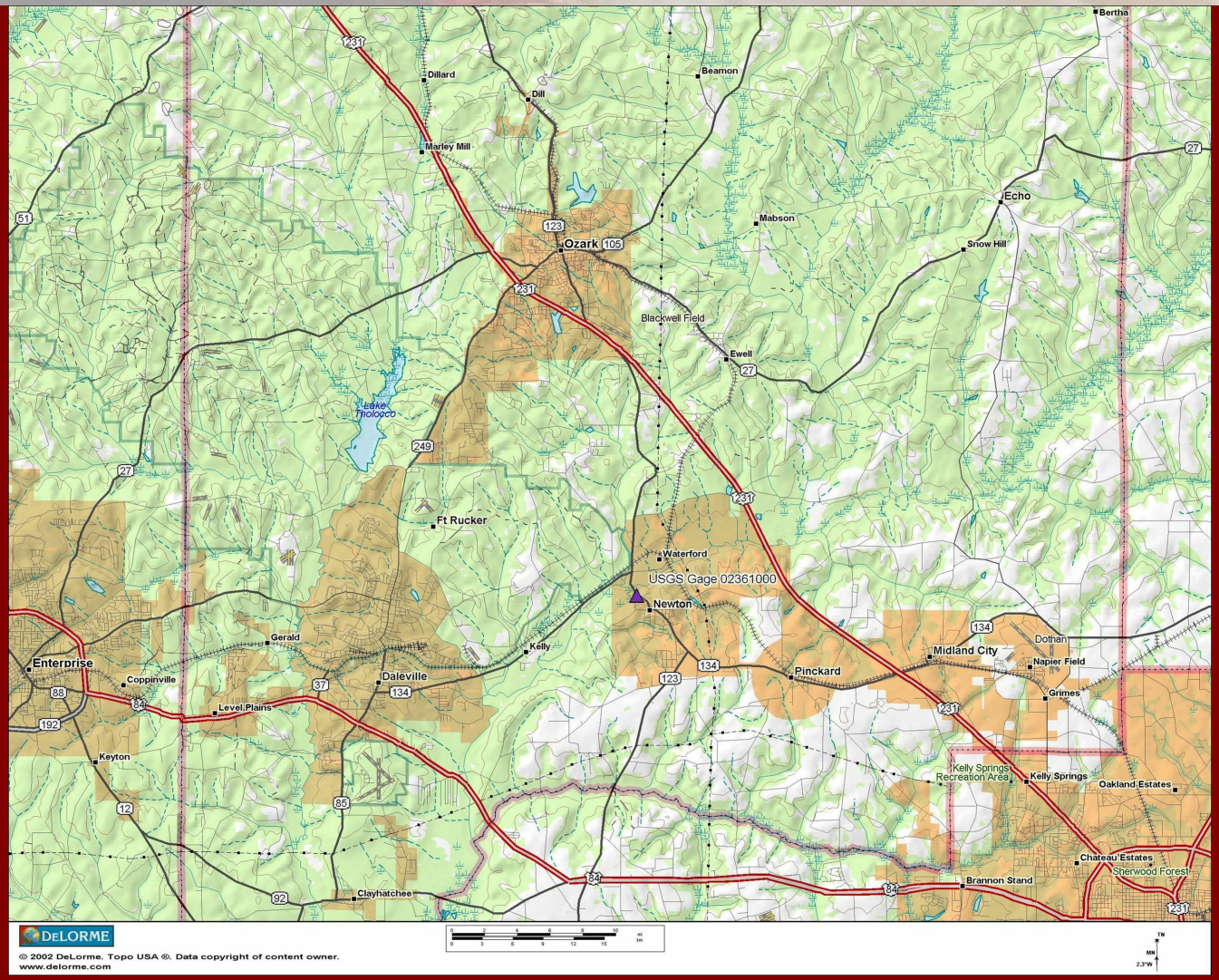
Direct Withdrawal Without Impoundment

- Considers Direct Withdrawal Without Impoundment From the Choctawhatchee River
  - **Conventional WTP to provide supplemental water supply to Dothan, Enterprise, Ozark, and others**
- ROM Costs
  - WTP 4/8 MGD - $12,000,000
  - 30” Transmission Main - $3,600,000
  - 24” Transmission Main - $9,900,000
  - 16” Transmission Main - $6,800,000
  - Storage Tank - $1,500,000
  - Booster Stations - $1,500,000
  - Total = $35,300,000
- Mitigation and real estate costs are not included

Additional Groundwater Use

- There is potential yield from the existing aquifers for supplemental water supply
  - Table A-47A of Appendix A
  - Figures A-31 and A-34 show areas of potential resource development
- Estimated ROM construction costs of area well development
  - Table A-48 of Appendix A
- ROM cost of transmission piping not included

Lake Tholocco



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Lake Tholocco

- Conversion from recreational to potable
- Three alternatives considered
  - As currently constructed
    - Firm Yield = 0.0 MGD
    - No ROM Costs
  - Use emergency spillway as service spillway
    - Firm Yield = 3.2 MGD
    - ROM Costs = $20,868,759.00
    - Service Area – Enterprise and Ozark
  - Raise service spillway to elevation 216.00 feet
    - Firm Yield = 8.4 MGD
    - ROM Costs = $45,990,420.00
    - Service Area – Enterprise, Ozark, and Dothan

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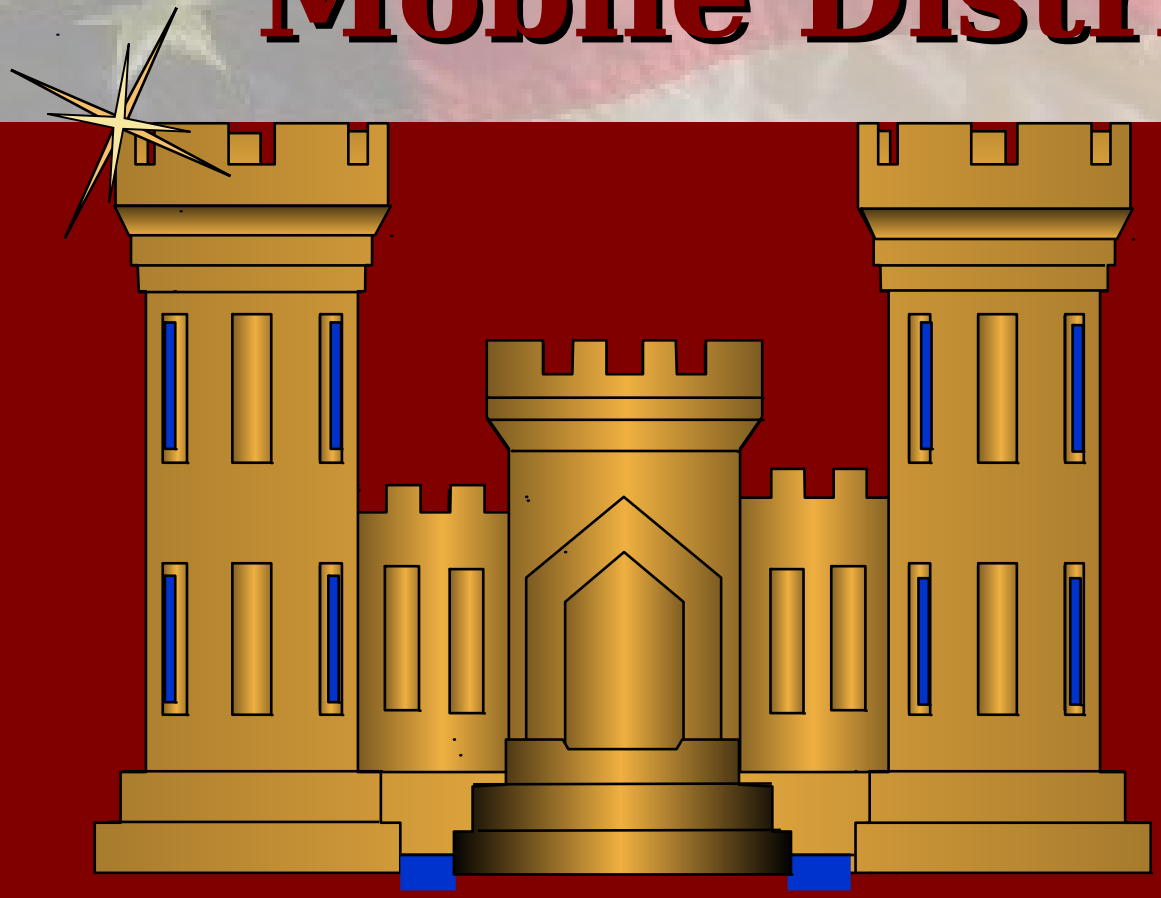

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